DETAILED ACTION

Acknowledgement is made of Applicant's remarks and amendments filed August 1, 2011. Acknowledgement is made of the amendment to Claim 1 and the cancellation of Claim 12. Rejections and/or objections not reiterated from previous office actions are hereby withdrawn. The following rejections and/or objections are either reiterated or newly applied. They constitute the complete set presently being applied to the instant application.

Status of Claims

Claims 1 – 10 are currently pending.

Withdrawn Rejections

Claim rejections – 35 USC § 112 – 2nd Paragraph

The rejection of Claims 1 – 10 and 12 under 35 U.S.C. 112, second paragraph as being indefinite is rendered moot and is withdrawn in response to Applicant's amendment which provides proper antecedent basis for the term "component".

Maintained Rejections

Claim rejections – 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1 – 10 *remain* rejected under 35 U.S.C. 103(a) as being unpatentable over Roser, J.R. in US patent 6,190,701 (published: 02/20/2001; IDS US Patent Cite No. 1) in view of Johnson, K.A. in US patent 5,376,359 (published: 12/27/1994).

Instant Claim 1 recites a formulation comprising an active ingredient preserved in a glassy or amorphous particle and suspended in a liquid. Instant Claim 1 also requires that at least one of the active ingredient, particles or liquid comprise a liquid hydrofluorinated ether.

Roser teaches a composition comprising a first component comprising a bioactive compound and sugar glass microparticles, and a second component, which comprises a biocompatible liquid perfluorocarbon (Abstract; instant Claim 1).

Roser teaches, in Example 2 (column 9), a suspension of alkaline phosphatase (a bioactive agent) immobilized in mannitol-based (sugar glass; instant Claim 2) microspheres (particles) in the liquid perfluorodecalin (a perfluorocarbon, instant Claim 5). Roser teaches the alkaline phosphatase/mannitol particles retain close to 100% of

their activity after 30 days (i.e. the enzyme is stabilized and its activity is preserved; instant Claim 1).

Roser teaches formulations in which additional components are added to the particles to provide a density in which the particles are stably dispersed (column 7, lines 16 – 18; Claim 13; instant Claim 3). Roser teaches the liquid may be blended with different components to achieve the desired density (Column 5, lines 49 – 56; instant Claim 4).

Roser teaches formulations in which the bioactive agent is a vaccine (Column 5, lines 40 – 44; Claim 17; instant Claim 6).

Roser teaches the particles may be made by the conventional techniques of spray-drying, freeze-drying and milling (grinding) (column 5, lines 65 – 67; column 6, lines 6 – 7; Example 5; instant Claims 7 – 9).

Roser teaches the method step recited in instant Claim 10 in which fluorinated solvents are selected in order to provide the required density matching (column 9, lines 20 – 27).

As noted above, Roser teaches compositions comprising a perfluorocarbon liquid. Further, Roser teaches if minor aggregation of the suspended sugar glass particles is a problem, small amounts of a fluorohydrocarbon (FHC) surfactant can be advantageously added to the perfluorohydrocarbons (PFC) liquid (column 6, lines 8 – 16). However, Roser does not teach compositions comprising a liquid hydrofluorinated ether (HFE) (instant Claim 1) or a hydrofluoroether or hydrofluoropolyether (instant Claim 12).

Johnson teaches a stabilized aerosol drug formulation comprising a suspension of a solid particulate drug composition with a fluoropolymer in a liquid fluorocarbon aerosol propellant (column 2, lines 17 – 37). Johnson teaches that drugs formulated as fine suspensions have a tendency to aggregate ("flocculate" or "clump up") (column 1, lines 42 – 44) which reads on the functional limitation recited for the Claimed composition "facilitating the dispersion of particles".

Johnson teaches that the combination of a fluoropolymer in a liquid fluorocarbon aerosol propellant resists flocculation of the suspended drug particles and thus, stabilizes the suspension (column 6, Example 1, lines 47 – 53). Johnson teaches the chemical structures of 34 fluorocarbon aerosol propellants including at least eight that are hydrofluoroethers (HFE's, hydrofluoroethers are considered to be indistinct from 'hydrofluorinated ether') (column 2, lines 41 – 64; instant Claims 1 and 12).

Johnson teaches that fluoropolymers include fluoropolyethers in which the term 'perfluorinated' is defined to mean that all, or essentially all, of the hydrogens on the fluoroether polymer are replaced with fluorine. Accordingly, in light of the teaching of 'essentially all of the hydrogens' are replaced by fluorine, one can reasonably construe that hydrofluoro polyethers (HFE's; instant Claim 12), in which at least some of the hydrogens are not replaced by fluorine, are also within the scope of the stabilized suspension compositions of Johnson.

It would have been *prima facie* obvious to one skilled in the art, to modify at least one 'component' (see 112 2nd paragraph rejection above) in the formulation of Roser with a liquid hydrofluorinated ether. One would have been motivated to do so because

Johnson teaches that compositions comprising a particulate solid drug (active agent) and a fluoroetherpolymer suspended in a liquid hydrofluorinated ether (HFE) aerosol propellant form stable suspensions by helping to prevent flocculation of the suspended drug particles. Accordingly, there would have been a reasonable and predictable expectation that adding one of the fluoropolyethers or a liquid hydrofluorinated ether propellant would also stabilize the suspended active agent glassy or amorphous particles of Roser.

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1 – 6 and 10 *remain* rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over Claims 1 – 4, 13 and 16 – 18 of Roser in U.S. Patent 6,190,701, in view of Johnson in US patent 5,376,359.

Although the conflicting claims are not identical, they are not patentably distinct from each other for the following reasons below:

The instant Claims and those in the copending Patent each claim a composition (a formulation) comprising a bioactive agent (a vaccine) and sugar glass particles suspended (dispersed) in a liquid. The difference between the instant Claims and those in the copending patent is that the copending Patent Claims require a perfluorocarbon liquid and the instant Claims require a liquid hydrofluorinated ether.

Johnson teaches a composition comprising a solid particulate drug composition and a fluoropolyether that forms a stable suspension in a liquid fluorocarbon aerosol propellant (Abstract). The Johnson reference also teaches that such compositions may comprise hydrofluorinated ethers and hydrofluorinated polyethers. Johnson teaches

that compositions comprising hydrofluorinated ethers and hydrofluorinated polyethers stabilize the suspension of drug particles and thus prevent aggregation or flocculation. Thus, it would have been *prima facie* obvious to one skilled in the art, to modify the perfluorohydrocarbons in the claimed suspensions of Roser with the hydrofluorinated polyethers and hydrofluorinated ethers of Johnson with a reasonable and predictable expectation of stabilizing the drug particle suspension.

Response to Arguments

Applicant's arguments filed August 1, 2011 with respect to the rejection under 35 U.S.C 103(a) of Claims 1 – 10 as being unpatentable over Roser, J.R. in US patent 6,190,701 in view of Johnson, K.A. in US patent 5,376,359 has been fully considered but are not found to be persuasive.

Applicant argues that "Johnson fails to disclose a composition in which hydrofluoroethers are used to provide the dispersion properties observed in the present invention. Rather, it is the **fluoropolymer component** in Johnson that provides the stabilization of the formulations. Johnson merely discusses hydrofluoroethers with respect to general possibilities for an aerosol propellant and not as part of a composition to improve dispersion" (Remarks, page 5, 1st paragraph).

These arguments have been carefully considered but are not found to be persuasive because, as discussed on pages 5 – 6, bridging paragraph, it is the combination of a fluoropolymer in a liquid fluorocarbon aerosol propellant resists

flocculation of the suspended drug particles and not exclusively the fluoropolymer component. Further, as discussed on page 6, 1st and 2nd paragraphs of the Office Action mailed March 1, 2011, each of the alternative fluoropolymer and liquid fluorocarbon components in the composition of Johnson include hydrofluoroethers. Therefore, at least one liquid component of the composition of Johnson may be a hydrofluoroether (as required in amended Claim 1) and the composition, as a whole, resists flocculation (i.e. facilitates dispersion) of particles.

Applicant's statement that "Hydrofluoroethers are not fluoropolymers (hydrofluoropolyethers are fluorinated polymers)" (Remarks, pages 4 – 5, bridging paragraph) is acknowledged but is not found to be persuasive because a hydrofluoroether can be a fluorinated polymer, provided that said hydrofluoroether contains repeating units (as required for any polymer).

Acknowledgement is made of Applicant's statement that a terminal disclaimer will be provided "upon indication of allowable subject matter but for the double patenting rejection" (Remarks, page 5).

In response it is noted that, because the prior art rejection under 35 USC 103(a) has been maintained in the instant Office Action, there is no allowable subject matter currently indicated. Accordingly, the obviousness-type double patenting rejection over claims 1 – 4, 13, and 16 – 18 of Roser in U.S. Patent 6,190,701, in view of Johnson in US patent 5,376,35, is maintained.

Conclusion

Claims 1 – 10 are rejected. No claims are allowed.

THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to DENNIS HEYER whose telephone number is (571)270-7677. The examiner can normally be reached on Monday-Friday 8AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, BRANDON FETTEROLF can be reached at (571)272-2919. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/DENNIS HEYER/
Examiner, Art Unit 1628

/Timothy P Thomas/
Primary Examiner, Art Unit 1628